

## REMARKS

New claims 51-54 are added. Claims 9-10, 12-14, 23-28 and 51-54 are pending in the present application.

Claims 9-14 and 23-28 stand rejected under 35 U.S.C. §112, second paragraph as being indefinite. Claims 9, 12-14 and 23-27 stand rejected under 35 U.S.C. §103 as being unpatentable over Chen et al (U.S. Patent No. 4,975,221) in view of Tsukagoshi et al (U.S. Patent No. 5,843,251). Claims 10 and 28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Chen in view of Tsukagoshi and further in view of Tuttle (U.S. Patent No. 5,558,679).

Regarding the §112 rejection against independent claims 9 and 23, claim 9 recites curing the adhesive into an electrically conductive bond electrically interconnecting the first and second components. Claim 23 recites curing the epoxy into an electrically conductive bond electrically interconnecting the first and second components. The Examiner states that both have the same problem, that is, that such language is indefinite because it is unclear what is required of the adhesive, and the Examiner presents the question "is the adhesive electrically conductive?" (Paragraph 3 of Paper No. 10).

What is required of the adhesive and is the adhesive electrically conductive are not questions that need to be addressed for the claims to be definite pursuant to §112, second paragraph. The Examiner is respectfully reminded that MPEP §2173.02 (8th Edition) states the essential inquiry pertaining to a §112, second paragraph requirement is whether the claims set out and circumscribe a particular subject matter with a reasonable degree

of clarity and particularity. Definiteness of claim language must be analyzed, not in a vacuum, but in light of:

- (A) the content of the particular application disclosure;
- (B) the teachings of the prior art; and
- (C) the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.

In reviewing a claim for compliance with 35 U.S.C. §112, second paragraph, the Examiner must consider the claim as a whole to determine whether the claim apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by 35 U.S.C. §112, second paragraph.

(citations omitted) MPEP §2173.02 (8th Edition). Applicant submits that the claims are clear and definite on their face. Moreover, one of ordinary skill in the art with the opportunity to consider and review the contents of the application disclosure pursuant to the above authority would clearly understand the language of the claims. Any questions regarding the adhesive are definitely explained in the application disclosure and do not have to be presented as limitations in the claims. "A fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers [and] [t]hey can define in the claims what they regard as their invention essentially in whatever terms they choose...." MPEP §2173.01 (8th Edition). Claims 9 and 23 are definite, and therefore, the §112 rejection against claims 9-14 and 23-28 is inappropriate and should be withdrawn. Applicant respectfully requests withdrawal of the §112 rejection against such claims in the next office action.

Claim 9 is rejected based on the combination of Chen and Tsukagoshi. The Examiner states the combination of art teaches the limitations of claim 9 by alleging that

Chen teaches any type of epoxy terminated silanes are suitable as an adhesion promoter and alleges that Tsukagoshi teaches methoxy silanes are adhesion promoters/coupling agents, particularly a silane coupling agent of glycidoxypopyltrimethoxysilane to strengthen an adhesive interface of circuits and to improve moisture resistance (paragraph 5 of Paper No. 10). The Examiner continues that it would be obvious of one of ordinary skill to use silane adhesion promoters such as glycidoxypopyltrimethoxysilane in the epoxy adhesive of Chen (Paragraph 5 of Paper No. 10).

However, the Examiner is respectfully reminded that the MPEP quotes case law to state that "[i]n determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." MPEP §2143.01 (8th Circuit) *citing In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). The teachings of Chen, the primary reference, is entirely directed to conductive adhesives for attaching semiconductor dies to substrates and improvements thereof (col. 1, lines 5-15 and 55-60; col. 3, lines 58-69 and col. 4, lines 1-10). Tsukagoshi teaches an insulative adhesive film and states that the adhesive film contains no electroconductive particles and is composed of insulative substances alone, so that this adhesive film involves no possibility of causing short-circuiting between adjacent circuits by electroconductive particles (col. 12, lines 1-6). Pursuant to the above authority, wherein one skilled in the art would have the Chen reference before him and concerned with providing conductive adhesives for attaching semiconductor dies to substrates, such

person would not look to teachings of an **insulative adhesive** as disclosed in Tsukagoshi to make the modification of the Chen **conductive adhesive**. No reasonable or fair argument can be made that a person with the concerns of Chen would look to Tsukagoshi for meaningful teachings, and therefore, the combination of art is inappropriate. In fact, the above-recited disclosure of Tsukagoshi at col. 12, lines 1-6 is a clear teaching away from the Applicant's invention to an electrically conductive bond. Such teaching away is the antithesis of the art suggesting that a person of ordinary skill would go in the claim's direction. Essentially, teaching away from the art is a *per se* demonstration of lack of obviousness. *In re Dow Chemical Company*, 837 F.2d 469, 5 USPQ2d 1529 (Fed. Cir. 1988). Accordingly, one skilled in the art would have no motivation to consider Tsukagoshi to modify the Chen invention, and therefore, the combination of art fails and should be withdrawn. For at least reason, Applicant respectfully requests allowance of claim 9 in the next office action.

Moreover, modifying the Chen invention to have an insulative adhesive as disclosed in Tsukagoshi would render the Chen invention unsatisfactory for its intended purpose, that is, unsatisfactory for providing a conductive adhesive composition as is the purpose and object of the Chen invention. The proposed combination rendering Chen unsatisfactory for its intended purpose is contrary to MPEP authority. "If [a] proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." MPEP §2143.01 (8th Edition) *citing In re Gordon*, 733 F.2d 900, 22 USPQ1125 (Fed. Cir. 1984). Accordingly, there is no suggestion or motivation to modify the Chen invention as

suggested by the Examiner, and therefore, the obviousness rejection fails. For this additional reason, claim 9 is allowable.

Claims 10, 12-14 and 51-52 depend from independent claim 9, and therefore, are allowable for the reasons discussed above with respect to the independent claim, as well as for their own recited features which are not shown or taught by the art of record.

Claim 23 is rejected based on the same combination of art as presented against claim 9, Chen and Tsukagoshi. Consequently, for the same reasons discussed above with respect to independent claim 9, the combination of art is inappropriate and the rejection against claim 23 fails. For this reason, claim 23 is allowable.

Moreover, claim 23 recites an epoxy having an effective metal surface wetting concentration of silane to form a cured electrical interconnection having a contact resistance through said metal surface of less than or equal to about 0.3 ohm-cm<sup>2</sup>. The combination of art fails to teach an effective metal surface wetting concentration of silane. The Examiner does not point to any teachings to wetting concentration, and an electronic search of the references verifies the cited art does not present any teachings to wetting concentration. The Examiner relies on the teachings of Tsukagoshi at column 12, lines 12-20 which states the silane coupling agents are low in molecular weight and mostly liquid at normal temperature, and then the Examiner **assumes** that it would be obvious to one of ordinary skill in the art to have an effective metal surface wetting concentration of silane (para. 5 of paper no. 10). Respectfully, assumptions are inapposite to teachings, and teachings are required for a proper obviousness rejection.

The Examiner is reminded that that the MPEP states that to establish *prima facie* obviousness of a claimed invention, all of the claimed limitations must be taught or

suggested by the prior art. MPEP §2143.03 (8<sup>th</sup> edition) *citing In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." MPEP §2143.03 (8<sup>th</sup> edition) *citing In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Further, all such elements must be shown to be suggested by the prior art when making a rejection based upon obviousness under 35 U.S.C. §103(a). *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1987). The Examiner's statement to the teachings of combination of art is completely devoid of any suggestion to a teaching of an effective metal surface wetting concentration of silane as recited in claim 23. Since the Examiner has not presented any suggestion or teaching to such positively recited limitation of the claim, the obviousness rejection fails and should be removed. For this additional reason, claim 23 is allowable.

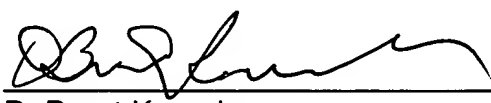
Moreover, the entire disclosure of Tsukagoshi (for which the Examiner relies to teach an effective metal surface wetting concentration of silane as recited in claim 23 (para. 5 of paper no. 10)) is replete with teachings to the adhesive containing silane being removed from any contact area of metal or electrodes (col. 4, Ins. 56-61; col. 5, Ins. 55-60), for example, specifically stating "the adhesive is eliminated from between the electrodes and the corresponding circuits to establish an electrical connection therebetween" (col. 11, Ins. 22-25). In no fair or reasonable argument does Tsukagoshi, singularly or in combination with Chen, teach or suggest an effective **metal surface wetting concentration of silane**. Since the combination of art fails to teach a positively recited limitation of claim 23, the obviousness rejection fails. For this additional reason, claim 23 is allowable.

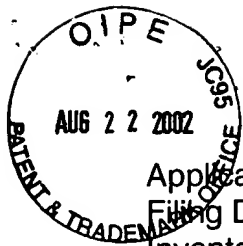
Claims 24-28 and 53-54 depend from independent claim 23, and therefore, are allowable for the reasons discussed above with respect to the independent claim, as well as for their own recited features which are not shown or taught by the art of record.

The Examiner is requested to phone the undersigned if the Examiner believes such would facilitate prosecution of the present application. The undersigned is available for telephone consultation at any time during normal business hours (Pacific Time Zone).

Respectfully submitted,

Dated: 8-22-02

By:   
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Filing Date .... January 10, 2000  
Inventor .... Rickie C. Lake  
Assignee .... Micron Technology, Inc.  
Group Art Unit .... 1733  
Examiner .... J. Haran  
Attorney's Docket No. .... MI40-274  
Title: "Method of Conductively Interconnecting Electronic Components, Battery Powerable Apparatus, Radio Frequency Communication Device, and Electric Circuit"

**VERSION WITH MARKINGS TO SHOW CHANGES MADE ACCOMPANYING  
RESPONSE TO MAY 22, 2002 OFFICE ACTION  
TO ACCOMPANY CPA FILING**

In the Claims

The claims have been amended as follows. Underlines indicate insertions and ~~strikeouts~~ indicate deletions.

There are no amendments to the claims.

Please add the following new claims:

51. (New) The method of claim 9 wherein the first electronic component comprises a first conductive node and the second electronic component comprises a second conductive node, wherein the first and second nodes comprise interfaces for the electrically interconnecting the first and second components, and wherein the interposing provides the curable adhesive composition interposed between the interfaces.



52. (New) The method of claim 51 wherein the curable adhesive composition contacts the interfaces.

53. (New) The method of claim 23 wherein the metal surface comprises a first conductive node of the first electronic component and the second electronic component comprises a second conductive node, wherein the first and second nodes comprise interfaces for the electrically interconnecting the first and second components, and wherein the interposing provides the curable epoxy composition interposed between the interfaces.

54. (New) The method of claim 53 wherein the curable epoxy composition contacts the metal surface and the second conductive node.

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